中科磁业
ZHONGKEMAGNET

Company Profile

ZHEJIANG ZHONGKE Magnetic Industry Co., Ltd

PROVIDE THE WORLD WITH A GREEN MAGNETIC SOURCE.

www.cnzkmag.com

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ZHONGKEMAGNET

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05 VISION AND FUTURE

中科磁业
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01

COMPANY PROFILE

Information about the company's background, history, and key details.

01

COMPANY PROFILE

Company Overview

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- Corporate Name : Zhejiang Zhongke Magnetic Industry co., Ltd.
- Land Area: 50,000 m²
- Number of Employees:638
- Main Business: Sintered NdFeB Magnets, Permanent Ferrite Magnets, Bonded Magnets
- Listed on the Shenzhen Stock Exchange’ s Growth Enterprise Market (GEM) in April 2023, Stock Code: 301141

01

COMPANY PROFILE

Display of Factory Area

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New 5G Factory

NdFeB Magnet Factory

Ferrite Magnet Factory

Vietnam Factory

01

COMPANY PROFILE

Certificate of Honor

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- National Specialized and New "Small Giants"
- Provincial Enterprise Technology Center
- Provincial Enterprise Research Institute
- Provincial High-Tech Enterprise R&D Center
- Provincial Innovative Model Enterprise
- Provincial Patent Demonstration Enterprise

- National High-tech Enterprise
- Second-class Prize of Provincial Scientific and Technological Progress
- The First Batch of New Materials in Zhejiang
- Provincial Green Low Carbon Factory
- Provincial Credit Management Model Enterprise
- Provincial AA Grade Contract-keeping and Credit-keeping Enterprise

01

COMPANY PROFILE

Industry Position

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- One of the few companies in China capable of producing electronic information materials on a scale of **tens of thousands of tons**;
- Ranking **Top 2** in the industry for high-performance magnet in the smart speaker magnet segment;
- Ranking **Top 3** in the industry for energy-saving motor magnet segment;

(Source: Magnetic Materials and Devices Branch of the China Electronics Components Industry Association)

- Led the establishment of **2 Zhejiang Manufacturing Group standards** and obtained **3 Zhejiang Manufacturing certifications**;
- Participated in the formulation of **3 national standards.**

01

COMPANY PROFILE

Guarantee System

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Quality Management System

Issued By Quailty Austria;
Complied with ISO 9001:2015 Standard Requirements

Environmental Management System

Issued by Zhongjian Certification Co.,Ltd.;
Complied with GB/T 24001-2016/ISO 14001:2015 Standard Requirements

Occupational Health and Safety Management System

Issued by Zhongjian Certification Co.,Ltd.;
Complied with GB/T 45001-2020/ISO 45001:2018 Standard Requirments

Automotive Quality Management System

Issued by Quailty Austria;
Complied with IATF 16949:2016 Standard Requirements

01

COMPANY PROFILE

Milestones

2010

- Zhongke Magnetic Industry Co., Ltd. established in 2010.

2012

- The second plant was built with self-purchased land.
- Mainly dealing in NdFeB magnets.

2013

- NdFeB factory officially put into production
- Full implementation of environmental management
- Passed ISO 14001:2015 Certification

2015

- Passed IATF 16949 Automobile Quality Sytem Certification.
- Ferrite arc magnet production line launched.

2018

- Officially changed name to Zhejiang Zhongke Magnetic Industry Co., Ltd.
- Passed OHSAS 18001 Certification.

2020

- Passed RoHS and REACH certification.
- Established Vietnam Zhongke Magnetic Co.

2023

- April 3, 2023, The Company successfully listed on the Growth Enterprise Market (Stock code: 301141).

01

COMPANY PROFILE

Company Organizational Structure

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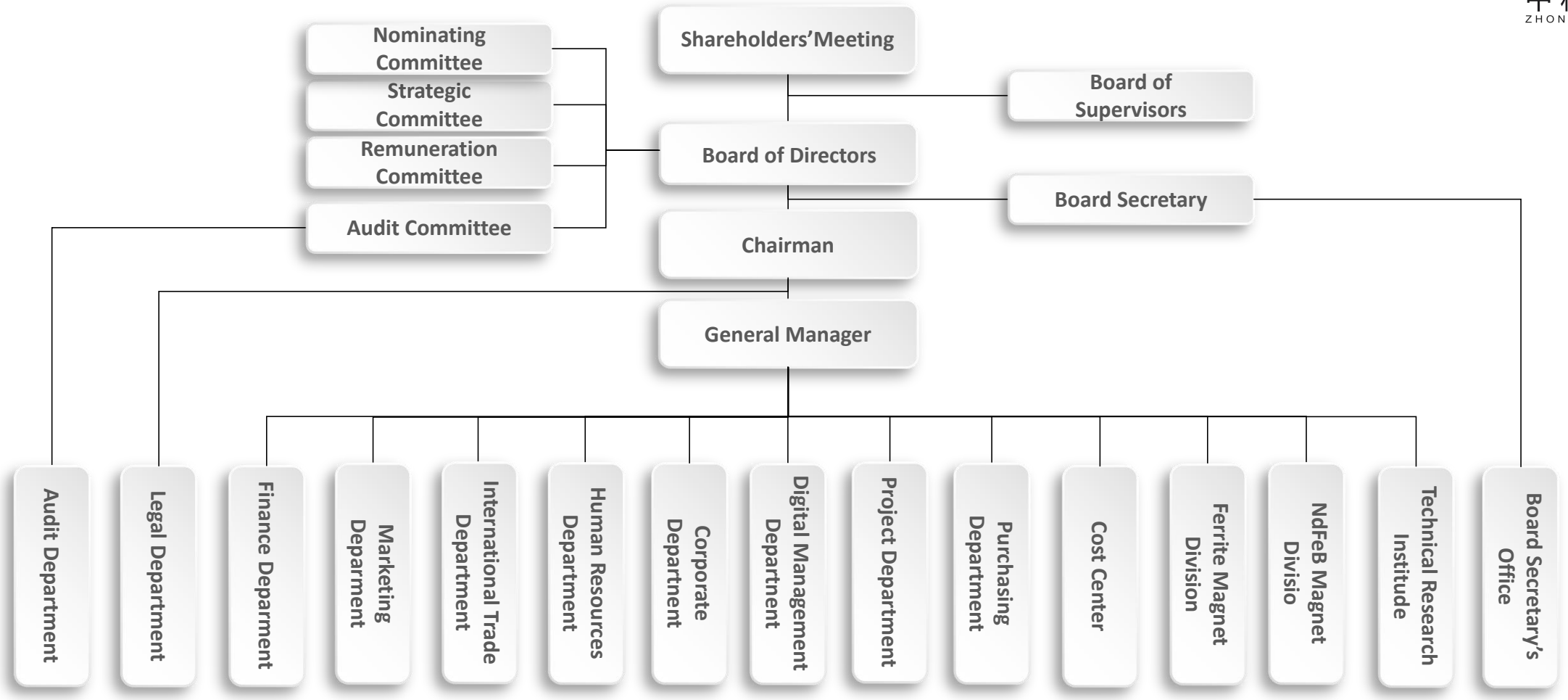


01

COMPANY PROFILE

Company Values

COMPANY'S CORE VALUES

Innovation Collaboration
Efficiency Development

COMPANY'S WORK STYLE

Resolute and Striving
Truth-Seeking and Pragmatic

COMPANY VISION

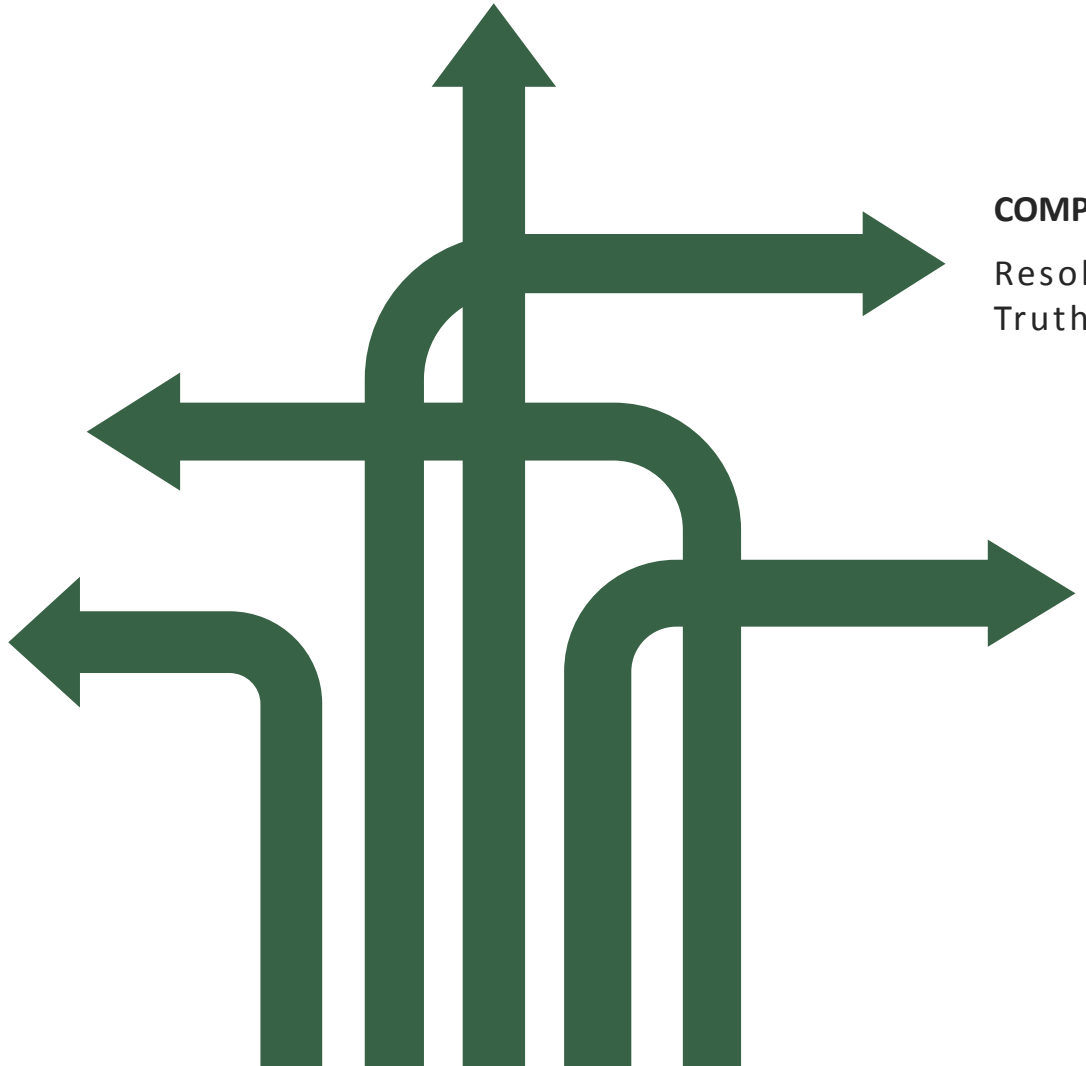
Providing the world with magnetic sources

MISSION OF THE COMPANY

Creating value and living well

COMPANY'S DEVELOPMENT STRATEGY

Focused on Magneic Materials
Intelligent Manufacturing



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COMPANY PROFILE

Our Social Responsibility

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Wastewater Treatment

Wasterwater is mainly divided into production wastewater and domestic wastewater. Production wastewater is reused after sedimentation treatment and not discharged; After being pre-treated by a sedimentation tank and meeting the standards, domestic sewage is included in the sewage pipeline network and sent to Hengdian Sewage Treatment Plant in Dongyang City for treatment.

Waste Gas Treatment

The exhaust gas mainly includes oil mist exhaust gas, dust, and klin flue gas generated during the production and processing process. The oil mist exhaust gas is treated by the oil mist purification device and discharged at high altitude through the exhaust funnel; The dust is treated by the built-in bag filter and discharged through the exhaust funnel; Kiln flue gas is formed by the combustion of clean energy natural gas, and its pollutant amount is very small and the emission concentration of each pollutant meets the standards, which is discharged through the exhaust funnel. The company's exhaust emissions comply with relevant environmental standards.

Solid Waste

The company classifies, collects, stores, and properly disposes of hazardous solid waste, general industrial solid waste, and household waste. The disposal methods usually include recycling production, outsourcing for comprehensive utilization, entrusting the environmental sanitation deparment for unified cleaning and transportation, and entrusting qualified enterprises for proper disposal.

Noise Control

The noise mainly comes from the operation of vaious equipment. The company adopts a reasonable layout, selects low noise and low vibration equipment, installs sound insulation pannels and shock absorbers, and use flexible rubber joints for connection to reduce noise and vibration. At the same time, the company has strengthened equipment management and maintenance to maintain normal operation and reduce high noise caused by equipment failures.

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COMPANY PROFILE

Manufacturing Facility (NdFeB Magnet Factory)

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Strip Casting Furnace

Jet Mill

Forming Presses

Vaccum Sintering Furnace

Multi-Wire Cutting Machine

Auto-Sorting Machine

01

COMPANY PROFILE

Testing Equipment (NdFeB Magnet Factory)

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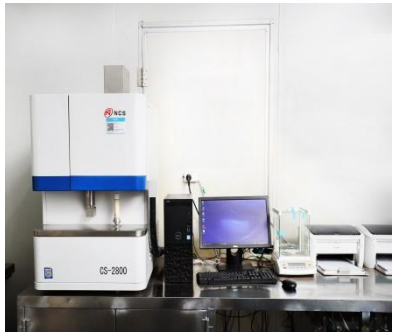
ICP Analyzer

Imaging Device

Laser Particle Size Analyzer

Oxygen and Hydrogen Analyzer



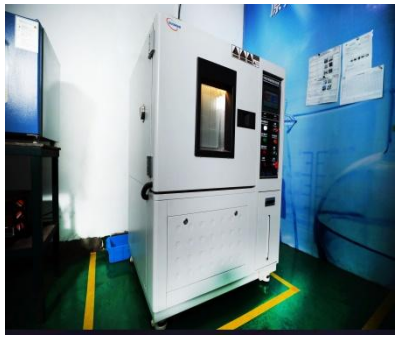
Carbon and Sulfur Analyzer

Magnetic Energy Characteristics Measuring Instrument

Manometers

High Temperature Test Chamber

Salt Spray Tester



Programmable Constant Temperature and Humidity Test Chamber

01

COMPANY PROFILE

Manufacturing Facility (Ferrite Magnet Factory)

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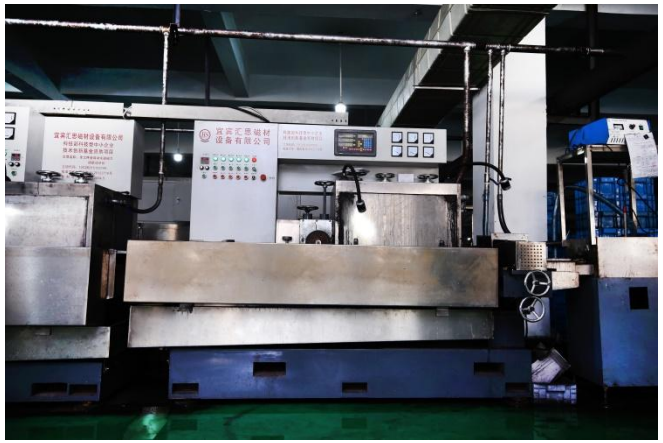
Ball Milling Machine

Fully Automatic Presses

Automatic Kiln



Fully Automatic Grinding Machine

01

COMPANY PROFILE

Testing Equipment (Ferrite Magnet Factory)

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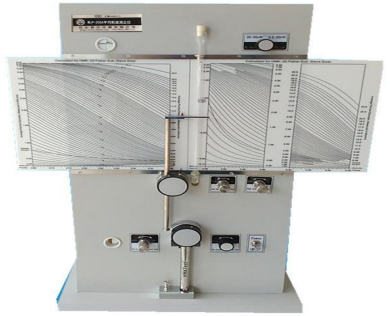
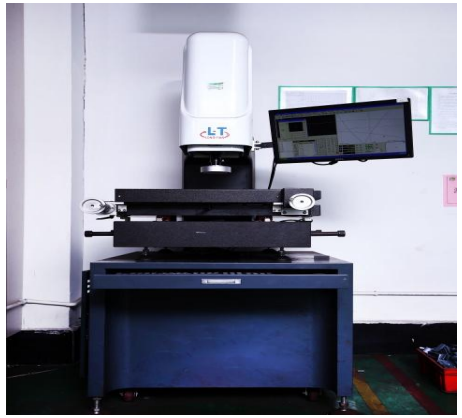


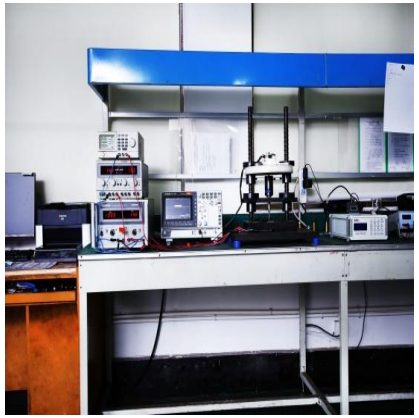
Average Particle Size Tester



Imaging Device

Permanent Magnet Tester

3D Waveform Tester

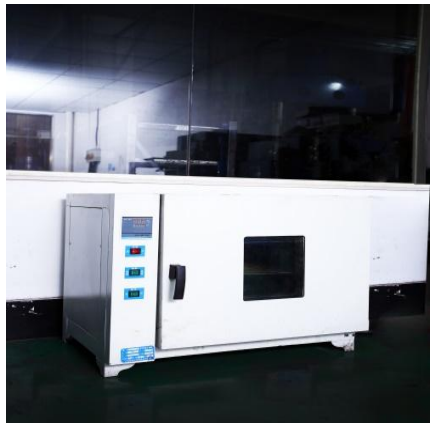


Reverse Potential Test Tooling

Compression Tester

Planetary Ball Mill

Moisture Tester



Electric Thermostat Box

Muffle Furnace

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PRODUCTS & TECHNOLOGY

Details about the company's range of products and services, technology and intellectual property rights.

02

PRODUCTS & TECHNOLOGY

Product Catalog

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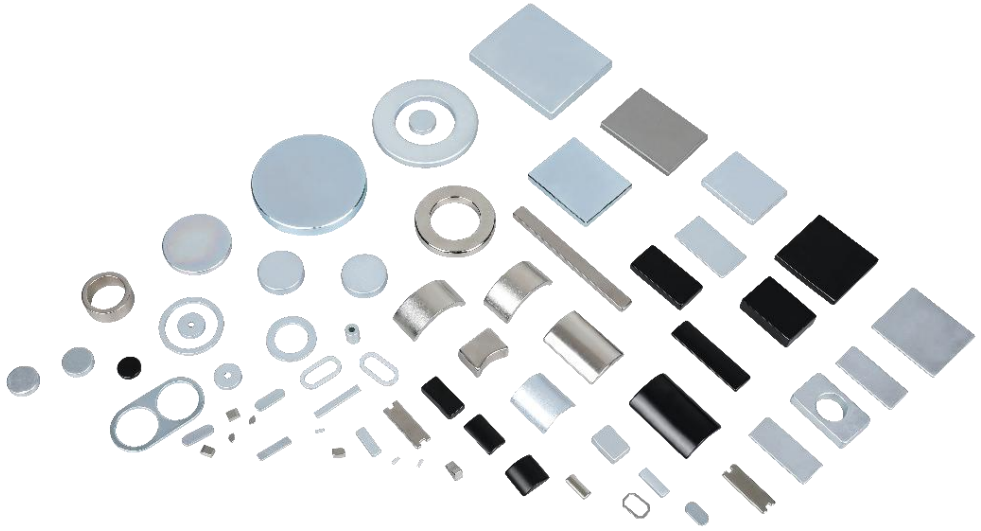
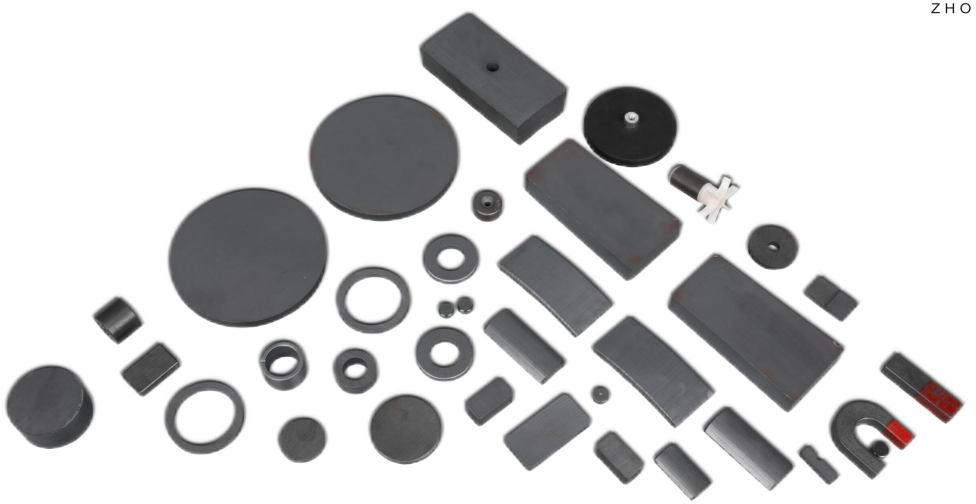


Sintered NdFeB

Bonded NdFeB (Neodymium-Iron-Boron)

Neodymium Iron Boron



Ferrite magnets are sintered permanent magnetic materials primarily composed of SrO or BaO and Fe2O3. They can be classified into anisotropic and isotropic magnets based on their processing technology.

Ferrite

02

PRODUCTS & TECHNOLOGY

Product Application

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Consumer Electronics Field

Consumer electronics products refer to intelligent electronic hardware products used by consumers in their diaily lives.

Intelligent Manufacturing Field

Permanent magnet materials are key materials for manufacturing the drive motors of industrial robots, as well as other core componentssuch as permanent magnet sensors and permanent magnet locking volves.

Wind Power Generation Field

At present, there are two main types of wind turbines: doubly fed and direct drive permanent magnet.

Energy Saving Household Appliances Field

Household appliances refer to various electrical products that help or replace people with household chores or improve their living environment.

Industrial Equipment Field

Industrial motors refer to general equipment motors widely used in the industrial field, such as fans, water pumps, compressors, and machine tools.

The Automotive Industry Field

According to Antaike data, the global demand for high-performance neodymium iron boron in 2018 was mainly concentrated in the automotive manufacturing sector.

02

PRODUCTS & TECHNOLOGY

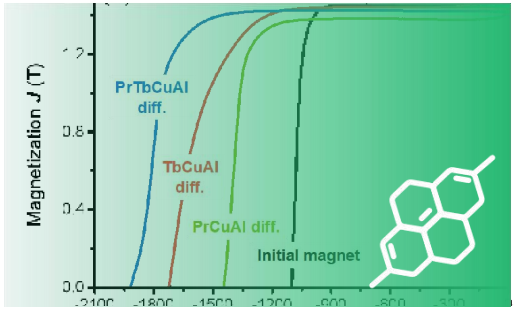
Advanced Technology

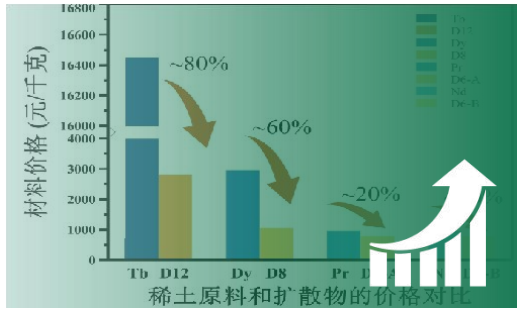
- The company’s core technologies are developed in cooperation with academic and research institutions such as Ningbo Institute of Materials Technology and Engineerin, Chinese Academy of Sciences, China Jilinag University, and Hangzhou Electronic University .
- Our products have excellent magnetic properties, high-temperature resistance, and corrosion resistance.
- The company offers over 4000 product specifications, dispatches 3500 batches of samples annually, and ensure the supply of high-end magnetic materials for 3C consumer electronics, new energy vehicles, the Internet of Things, smart homes, industrial robots, and drones. .

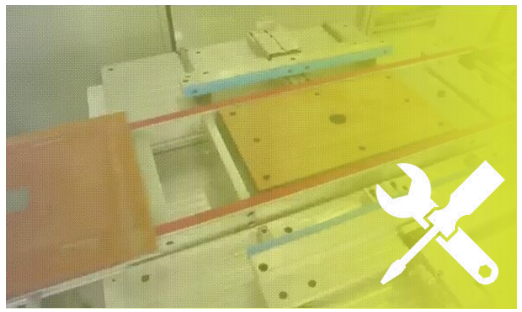
02

PRODUCTS & TECHNOLOGY

Key preparation technology for reducing heavy rare earths and increasing efficiency in NdFeB magnets.







- By combining multi-element synergistic grain boundary diffusion and diffusion photo-solid printing technology, we have developed and manufactured ultra-high-performance sintered NdFeB magnets and devices for the electronics and information industry, which are resistant to high temperatures, highly stable and low in heavy rare earths. This breaks the Japanese grain boundary diffusion technology blockade and has applied for six invention patents.

- By optimizing the microstructure of the mateiral with dual-alloy technology, we have developed a series of key preparation processes based on high-abundance rare earth cerium magnets, micro-element efficiency enhancement, and precise control of complex grain boundaires. This technology won the “2020 Provincial Science and Technology Progress Second Prize.”

02

PRODUCTS & TECHNOLOGY

High-abundance, high-performance novel cerium magnets with rare earth elements

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Technical index:

Under the premise of no Tb and Dy heavy rare earths, when cerium content accounts for ≥30% of the total amount of rare earths:

(BH)max(MGOe)+Hcj(kOe)≥50


浙江省首台（套）产品

证 书

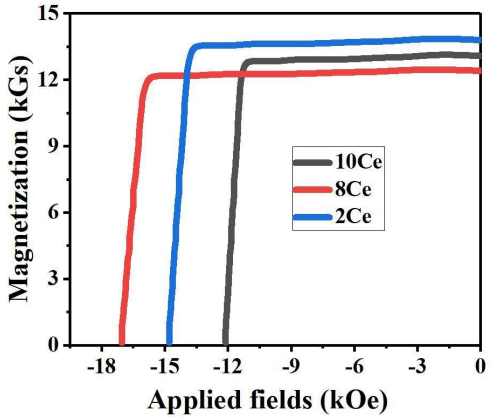
等　　级：国内首批次新材料

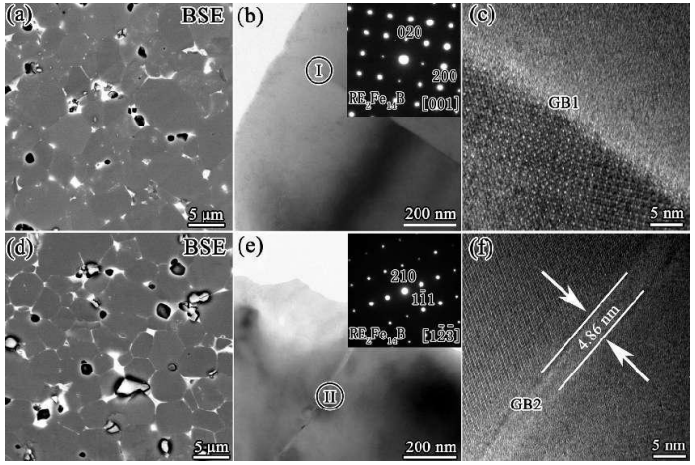
产品名称：高性能新型铈磁体

完成单位：浙江中科磁业股份有限公司

主要完成人：黄益红　曲志辉　许国忠　白慧龙　李容军

2021年12月





- The technology level is industry-leading, breaking international monopolies and achieving substitution in key areas with applications in well-known users. It has been recognized as "Zhejiang Province's Key First Batch of New Materials" in 2021.
- To address the issue of China's abundant high-abundance rare earth reserves but insufficient application, under the premise of no heavy rare earths like terbium and dysprosium and high cerium element substitution, by regulating and optimizing the rapid quenching melt-spinning process, effectively suppressed α-Fe dendrites and obtained excellent columnar crystal structure melt-spun ribbons.

02

PRODUCTS & TECHNOLOGY

High-performance miniaturized NdFeB magnets for 5G communication

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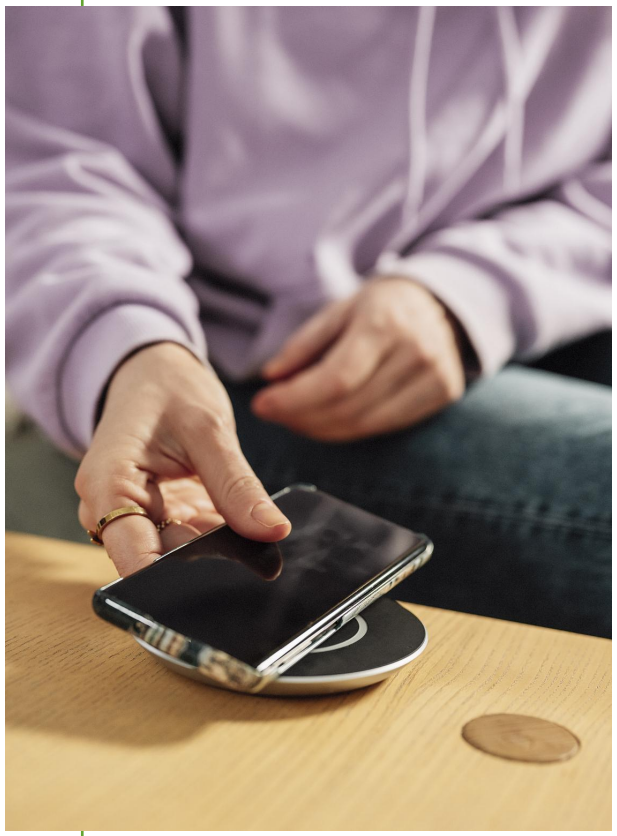
Jointly developed with domestic partners, new wireless charging products circumvent Product A's patents.

It broke the monopoly of Japanese companies in high-performance neodymium-iron-boron magnets for 5G communication and realized the domestication of high-performance neodymium-iron-boron magnets for 5G communication. This project was awarded the "2022 Provincial Industrial Chain Collaborative Innovation Project" (already accepted).

Assisted Huawei and Xiaomi supply chain companies such as Goertek and Luxshare to implement the supply chain security plan for this material, ensuring the safe and stable supply of the domestic 5G smart terminal product industry. Targeting the challenges of low performance and difficult preparation and processing of miniaturized magnets, based on proprietary technologies such as grain boundary reconstruction and modification, ultra-thin small magnet processing, and multi-layer composite surface treatment, the technical bottleneck of ultra-thin, high-performance miniaturized magnets was broken, with a thickness of no more than 0.35mm and precision control within 0~0.02mm.



02

PRODUCTS & TECHNOLOGY

Based on ion-doped rare-earth ferrite permanent magnet preparation technology

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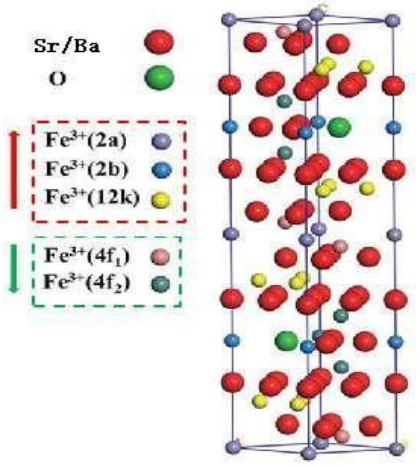

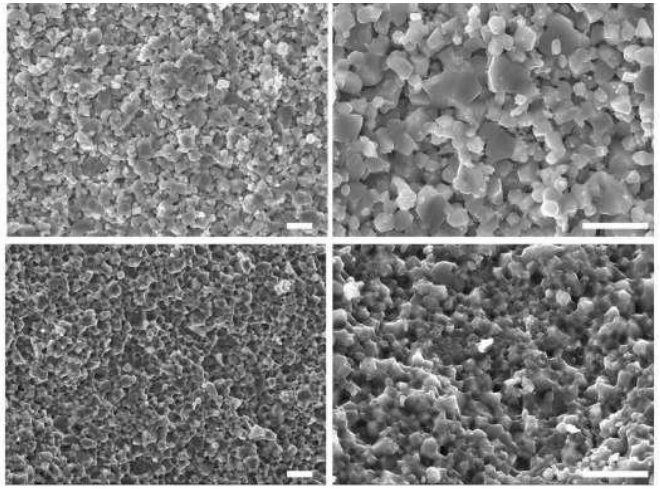

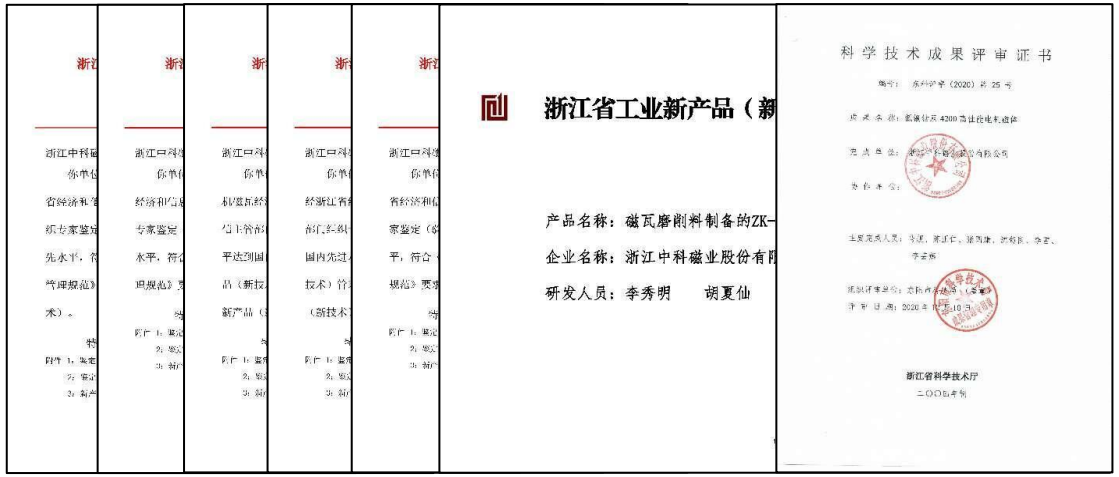

- It filled the performance gap between neodymium-iron-boron magnets and ferrites in permanent magnet materials, reaching the same performance level as Japan's TDK, and is at the domestic leading level with 13 projects, obtaining 2 invention patents.
- By using rare-earth ionsLa^{3+}、Co^{2+} to jointly replace Sr^{3+}、Fe^{3+} technology, finely controlling the grain size and uniformity, significantly improving the remanence and coercivity of rare-earth permanent magnet materials;
- Based on ion doping and joint replacement technology, in magnets with low La-Co substitution, Br > 0.42 T, Hcb > 286 kA/m, Hcj > 334 kA/m, (BH)max > 31.8 kJ/m³.

02

PRODUCTS & TECHNOLOGY

Selected Technical Results

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The products of the project have been awarded 38 provincial new products, among which 5 are of international advanced level and 27 are of domestic leading level. The list of some provincial new products is as follows:

New Product Name	Identification of technical levels
Ultra-thin small magnetic tiles for smart robots	International advanced level
High-performance N55 magnets prepared by low-oxygen process	International advanced level
Heavy rare earth free high corrosion resistant magnets	International advanced level
50UH high-performance magnets for energy-saving inverter air conditioners	International advanced level
Low-heavy rare earth ultra-high performance motor magnets	International advanced level
Magnets for 5G communication voice modules	National leading level
-60℃ low temperature resistant motor tile	National leading level
Low Neodymium Low Heavy Rare Earth Sintered NdFeB Magnets for Smart Audio Applications	National leading level
Magnets for wireless charging modules for 5G cell phones	National leading level
NdFeB magnets for new energy vehicle motors	National leading level
Micromotor rotor tiles	National leading level
Highly endowed magnetic tiles for air conditioning motors	National leading level
Low Lanthanum Cobalt Dual 4200 High Performance Motor Magnets	National leading level

02

PRODUCTS & TECHNOLOGY

Intellectual Property Rights (Law)

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It has applied for 69 national invention patents, including 23 invention patents, all of which are self-developed with clear intellectual property rights. The main authorized invention patents are listed in the table below:

Patent Number	Patent Name
ZL 2023 1 0738679.3	A kind of NdFeB press blank device and press blank method
ZL 2023 1 0066914.7	A kind of magnetic tile manufacturing device and method for high torque drive motor
ZL 2022 1 0469666.6	A neodymium-iron-boron magnet processing system and neodymium-iron-boron shaped magnet processing method
ZL 2022 1 0494376.7	A neodymium iron boron magnet processing system and method
ZL 2018 1 0789953.9	A method to enhance the coercivity of NdFeB magnets by evaporative grain boundary diffusion
ZL 2018 1 0791634.1	A high-pressure heat treatment of grain boundary diffusion to enhance the coercivity of NdFeB magnets
ZL 2018 1 0920259.6	Preparation of a samarium-cobalt-based nanocomposite permanent magnet doped with SmCu alloy
ZL 2018 1 1090468.9	Magnetic Coarse Powder Processing System
ZL 2018 1 0467453.3	A kind of homogeneous mixer

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03

MAIN CLIENTS

Key clients and customers the company serves.

03 MAIN CLIENTS

Customers in the Motor Field

中科磁业
ZHONGKEMAGNET

SAMSUNG

Welling
威靈電機

Nidec
日本·尼得科

WOLONG
Power your future

Standard Electric Holdings Ltd.
標準電機控股有限公司

大洋电机
BROAD-OCEAN

NICHIBO
DC MOTOR YOUTUBE
ELECTRIC
MACHINE

KB 凯邦电机

GMCC 美芝

03 MAIN CLIENTS

Customers in the Motor Field

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ZHONGKEMAGNET

power®力辉
电 动 美 好 生 活
Motor Powers Life

重庆赛力盟电机有限责任公司
CEMF

雷 Leili 利 江苏雷利
股票代码：300660

JEA吉力电装
成 就 世 界 机 电 领 导 者
BECOMES ONE OF THE LEADERS IN THE WORLDWIDE MOTOR PRODUCTION

瑜YP欣 重庆瑜欣平瑞电子股份有限公司

SENCI®神驰

PUER普尔

CHCD

DONPER

03 MAIN CLIENTS

Customers in the Field of Acoustics

中科磁业
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Goertek
Gore (name)

LUXSHARE ICT
立讯精密

EASTECH
Dongke Group

ESTec
Esther

SUNGJU

Roxound
Rongxian Industry

TONLY
Tom Lee Electronics

KLS

FG
Forgrand
Fu Yau Hung Technology

03 MAIN CLIENTS

Customers in the Field of Acoustics

中科磁业
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EM-Tech
Beautiful Sound & Healthy Life

惠州市合升科技有限公司
Huizhou Hesheng Electronic Co., Ltd.

联创丽声
LIANCHUANG
LISTEN ELECTRONIC
惠州市联创丽声电子有限公司

DAIN 音品電子
YINPIN ELECTRONICS

BUJEON

F&D 奋达科技

VECO
弘立電子

S. U.
蘇州東立電子有限公司
SUZHOU DONGLI ELECTRONIC CO., LTD.

東莞正陽電子有限公司
DONGGUAN NEW SUNLINK ELECTRONIC CO.,LTD.

03

FINANCIAL PERFORMANCE

Zhongke Magnetics Domestic Market

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中科磁业
ZHONGKEMAGNET

04

FINANCIAL PERFORMANCE

Overview of financial performance, growth indicators, etc.

04

FINANCIAL PERFORMANCE

Sale Trend Chart for the Past Five Years

Over the past five years, the company’s sales revenue has experienced steady growth

04

FINANCIAL PERFORMANCE

Company’s Annual Revenue and R&D Expenses

中科磁业
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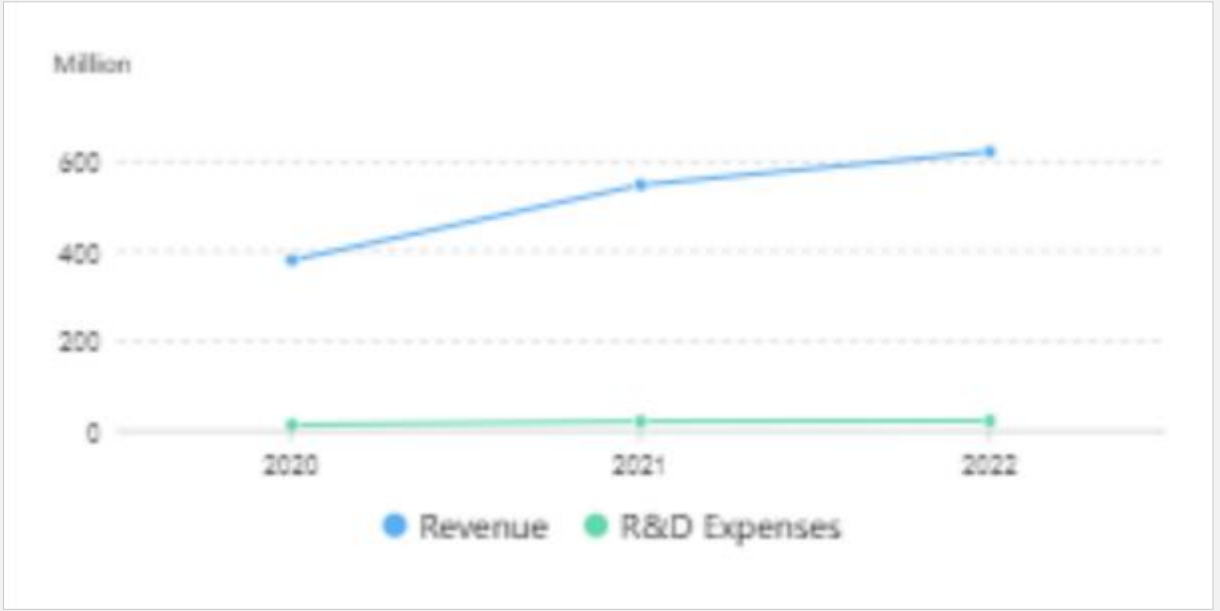
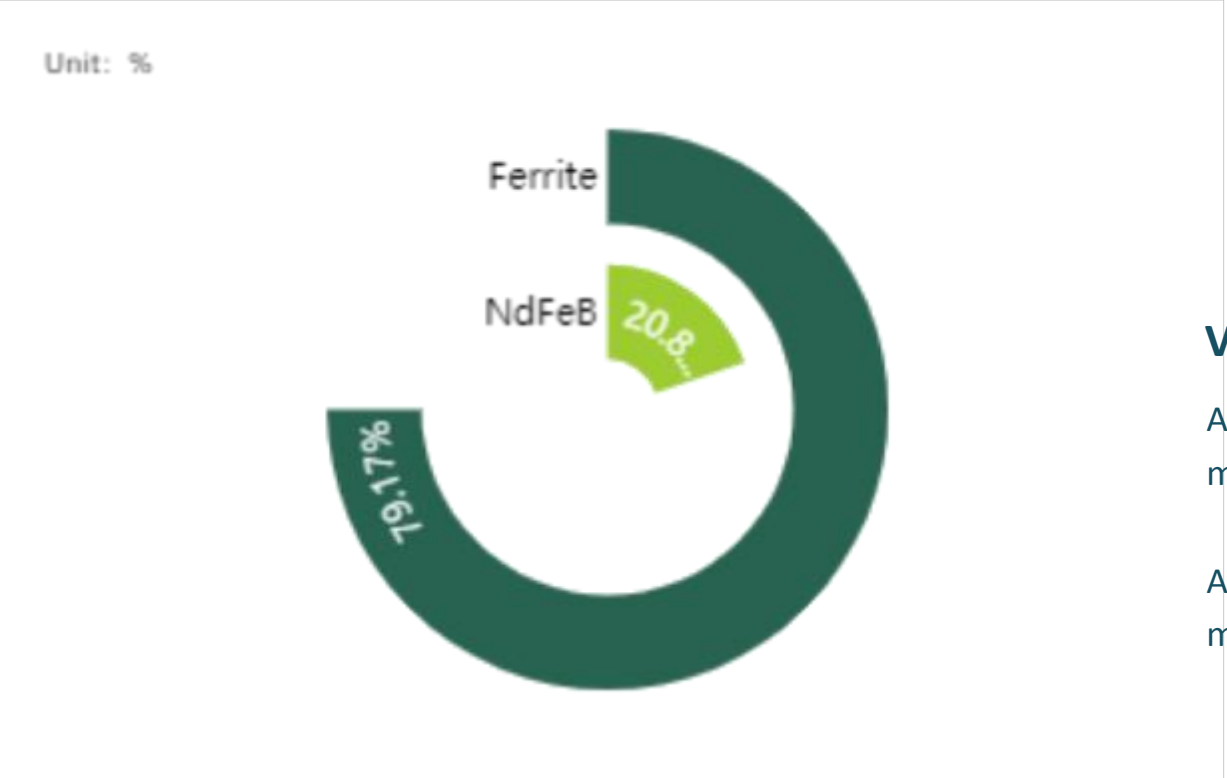
YEAR	REVENUE (MILLION)	R&D EXPENSES (MILLION)	R&D EXPENITURE RATIO
2020	378.08	12.26	3.35%
2021	545.40	19.88	3.81%
2022	619.25	21.12	3.72%



04

FINANCIAL PERFORMANCE

Company's Annual Prodcuction Capacity



Existing Factory Areas:

Annual Production Capacity of NdF
magnet: **3,000 tons.**

Annual Production Capacity of Ferr
arc magnet: **12,000 tons**.

Vietnam Factory (Planned):

Annual Production Capacity of NdFeB magnet: 1**,000 tons.**

Annual Production Capacity of Ferrite magnet: **6,000 tons**.

New 5G factory (Planned):

Annual Production Capacity of high-performance motor NdFeB magnet: **6,000 tons.**

Annual Production Capacity of Ferrite magnet: **20,000 tons**.

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05

VISION AND FUTURE

Long-term Vision and Goals for the Future

04 VISION AND FUTURE

Strategic Guidelines

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Steady Development, Excellent Service

- Ensure the technical leadership and dominant position in energy-saving motor magnet;
- Ensure the leading position in high-performance magnets for smart speakers;
- Provide timely and effective high-quality service to customer.

Technology Leadership, Continuous Innovation

- Establish key corporate reasearch institute and closely cooperate with scientific research institutions to build future factories for intelligent manufacturing;
- Develop core competitiveness in the fields of 5G communication, smart wearables, and new energy vehicles.

Cooperation and Win Win, Creating Value

- Integrate industrial chain resources and complement the adavantages of partners;
- Optimize the industrial ecology and create a healthy and positive industry environment.

VISION AND FUTURE

Manufacturing Enhancement Planning

VISION

Become a benchmark for magnet manufacturers in China

GOAL

Pursuit of maximum efficiency through the total elimination of waste

10% year-on-year increase in efficiency

Lean design

- New plant construction
- Standardized design
- Automation

Lean manufacturing

- Total Improvement
- Process Technology Upgrade
- Energy conservation and consumption reduction

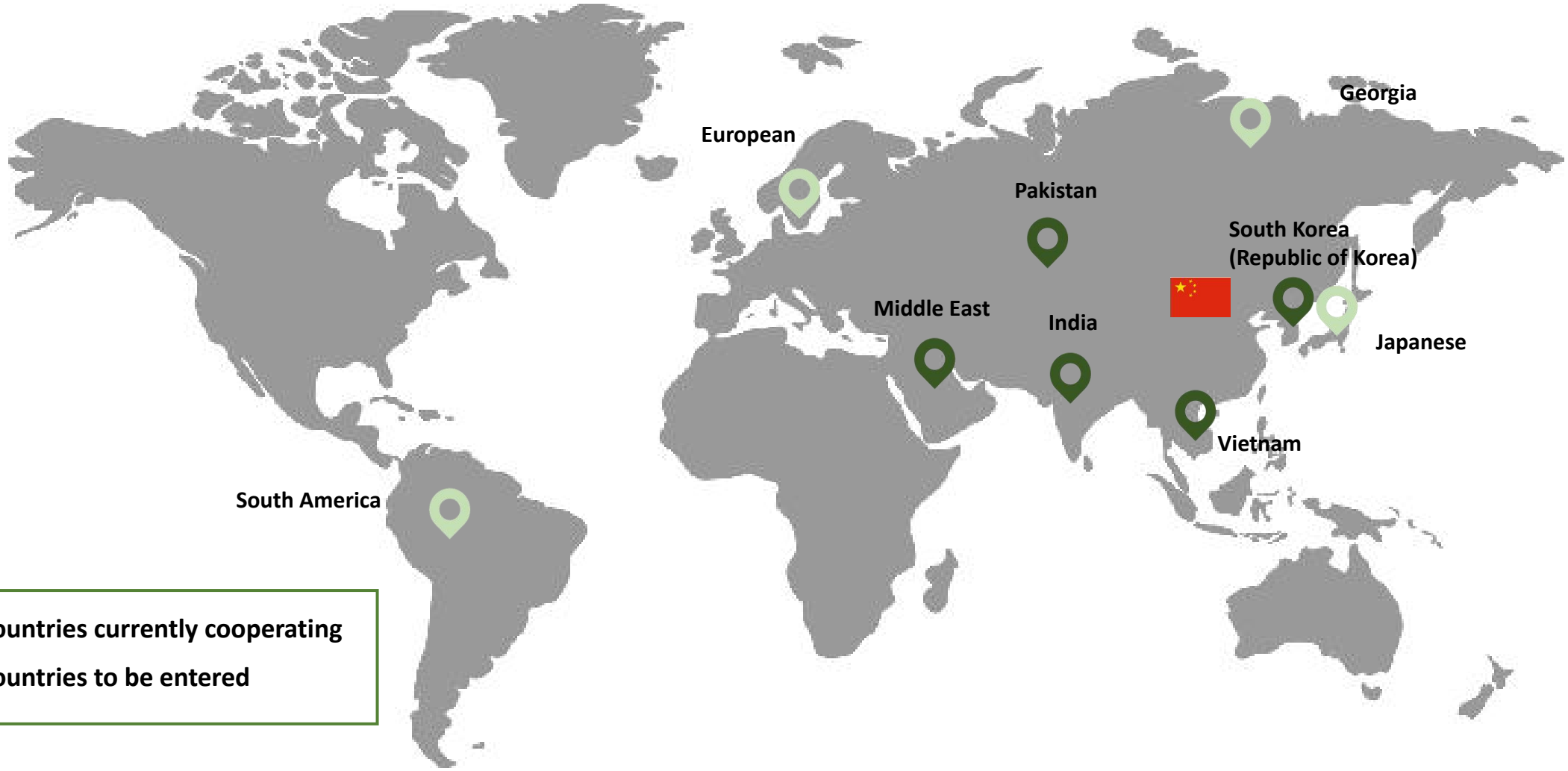
Environmental Improvements

- Dust and noise reduction
- Environmental systems

People-oriented, continuous improvement for all staff

VISION AND FUTURE

Global Market Layout



VISION AND FUTURE

Future outlook for new industrial parks

Construction Scale

Land Area	179.40 Acr	Construction Area	272762 ㎡
Construction Period	2023-10 to 2026-12		

The Zhongke New Materials Industrial Park has a total investment of 2 billion yuan. It is constructed to the standards of a provincial-level future factory and a national green low-carbon factory. New leading production lines for energy-saving motor magnet and high-performance NdFeB magnet are being built. This will result in an annual production capacity of 20,000 tons of energy-saving motor magnetic tiles and 6,000 tons of high-performance NdFeB magnetic steel. The products from this project are applied in electronic information industries such as smart homes, industrial robots, new energy vehicles, 3C consumer electronics, the Internet of Things (IoT), and drones.

2023.10

Project commencement Plant construction

2024.8

10,000 tons of energy saving Commissioning of motor magnet

2025.6

- 10,000 tons of energy saving Motor magnet
- 1000 tons high performance NdFeB magnets put into production

2025.10

2000 tons high performance NdFeB magnets put into production

VISION AND FUTURE

Vietnam Factory Overview

Ball Milling Workshop

Molding Workshop

Sintering Plant

Fully Automated Grinding Machine

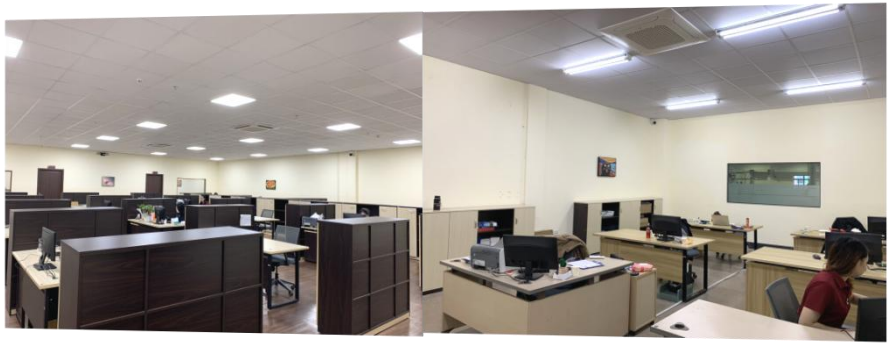
VISION AND FUTURE

Vietnam Factory Overview

Sorting Workshop

Raw Material Warehouse

Central Laboratory



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